

## Section 4

# TOOTH LOSS

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Oral diseases such as dental caries and periodontal disease are the primary reasons for tooth loss/extractions (Oliver & Brown, 1993; CDC, 1999). Tooth loss has psychological, social, and physical effects. A person's quality of life is diminished as a result of tooth loss due to a reduction in the ability to chew and speak and to reduced social interactions (Hollister & Weintraub, 1993; Reisine & Locker, 1995; Gift & Redford, 1992).

This section examines the following indicators related to tooth loss: loss of no permanent teeth to disease, characterization of tooth loss (functional dentition), complete loss of all teeth (edentulism), and denture ownership and use.

### REFERENCES

- Centers for Disease Control and Prevention. Total tooth loss among persons aged > or = 65 years—selected states, 1995-1997. *MMWR Morb Mortal Wkly Rep* 1999;48(10):206-10.
- Gift HC, Redford M. Oral health and quality of life. *Clin Geriatr Med* 1992;8:673-83.
- Hollister MC, Weintraub JA. The association of oral status with systemic health, quality of life, and economic productivity. *J Dent Educ* 1993;57(12):901-12.
- Oliver RC, Brown LJ. Periodontal diseases and tooth loss. *Periodontology 2000* 1993;2:117-27.
- Reisine S, Locker D. Social, psychological, and economic impacts of oral conditions and treatments. In: Cohen LK, Gift HC (eds.). *Disease Prevention and Oral Health Promotion: Socio-Dental Sciences in Action*. Copenhagen: Munksgaard and la Federation Dentaire Internationale, 1995, 33-71.



# 4.1 Persons with full dentition

A full dentition in adults is defined as the presence of all natural teeth, not including third molars. Approximately 30% of the U.S. population aged 18 and older were fully dentate in the Third National Health and Nutrition Examination Survey (NHANES III) 1988-1994 (Marcus et al., 1996).

## SOURCES OF DATA

Analyses reported here are based on the Third National Health and Nutrition Examination Survey (NHANES III) 1988-1994, National Center for Health Statistics, Centers for Disease Control and Prevention and the 1999 Behavioral Risk Factor Surveillance System (BRFSS), Centers for Disease Control and Prevention. NHANES III used clinical exams while BRFSS contains self-reported data.

### Demographic differences (Figure 4.1.1)

- The proportion of persons with full dentition was lower in the older age groups.
- A greater percentage of non-Hispanic whites and Mexican Americans had full dentitions compared to non-Hispanic blacks.
- The percentage of persons with a full dentition was higher at each successive educational level.

- At both poverty levels, a greater percentage of non-Hispanic whites and Mexican Americans compared to non-Hispanic blacks had full dentitions.

### Differences by federal poverty level (Figure 4.1.2)

- A greater percentage of persons living at or above the federal poverty level had full dentitions.

### Differences by income (Figure 4.1.3)

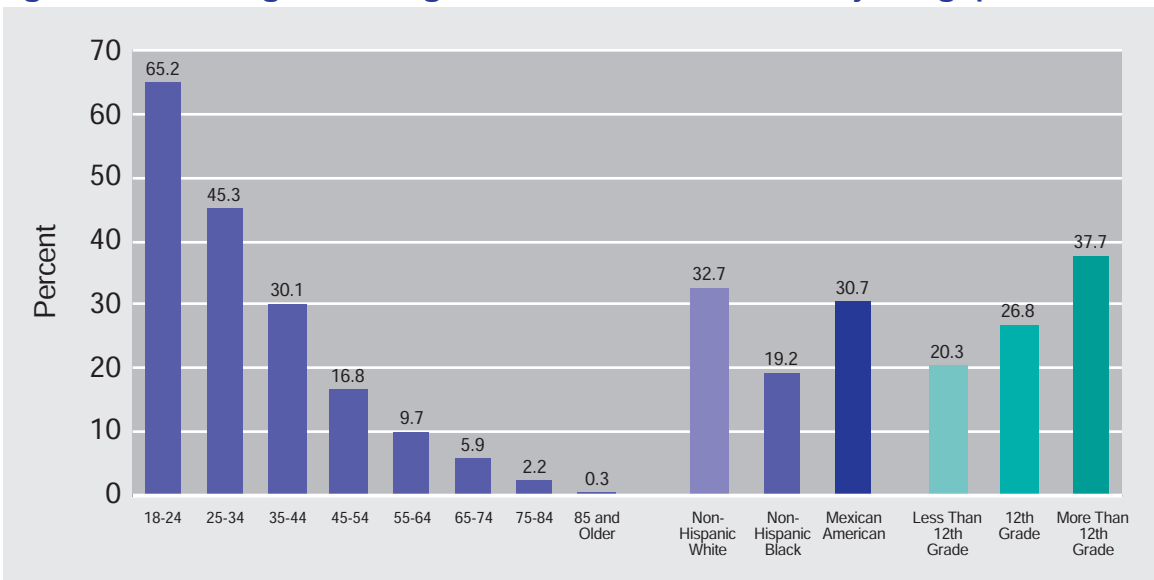
- The percentage of persons with full dentitions was greater at each higher income level.

*Bullets reference data that can be found in Table 4.1.1.*

## REFERENCES

Marcus SE, Drury TF, Brown LJ, Zion GR. Tooth retention and tooth loss in the permanent dentition of adults: United States, 1988-1991. J Dent Res 1996;75:684-95.

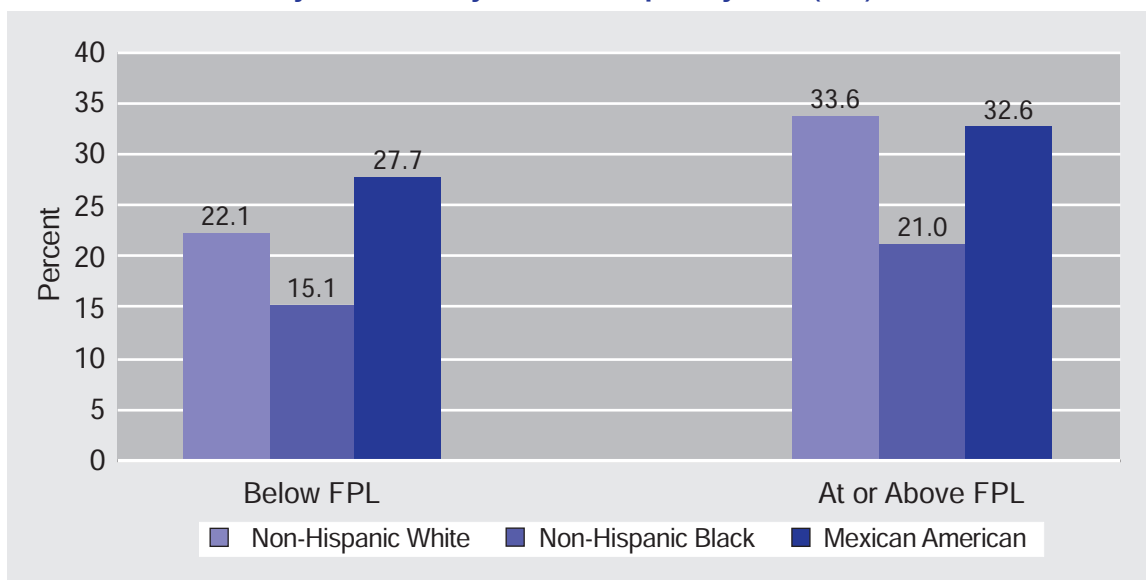
Figure 4.1.1. Percentage of adults aged 18 and older with full dentition by demographic variables\*



\*Age standardized to the year 2000 U.S. population except for age groups.

Data source: The Third National Health and Nutrition Examination Survey (NHANES III) 1988-1994, National Center for Health Statistics, Centers for Disease Control and Prevention.

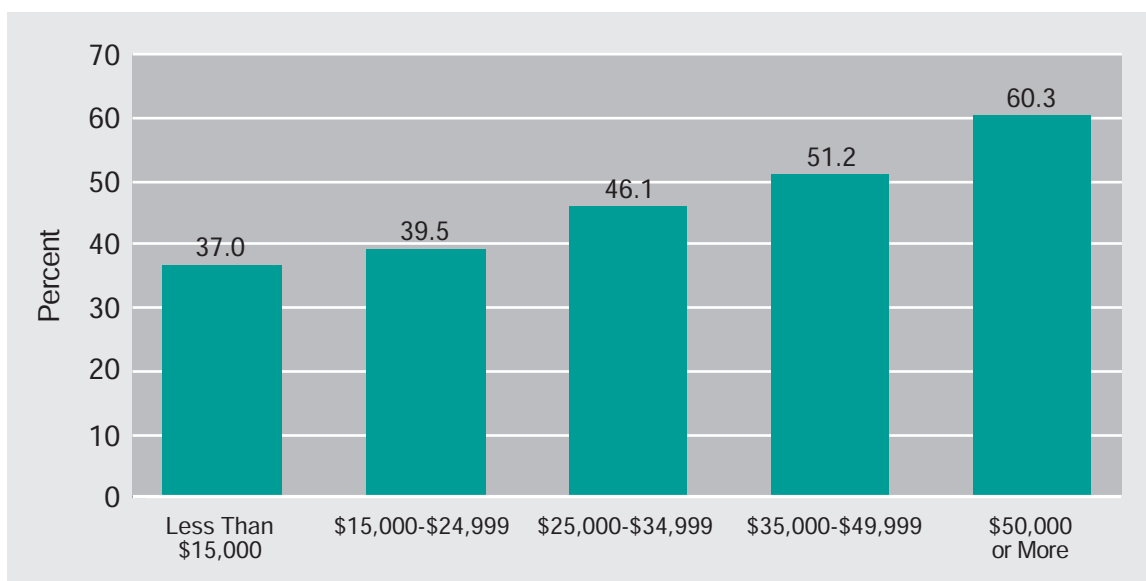
**Figure 4.1.2. Percentage of adults aged 18 and older with full dentition by race/ethnicity and federal poverty level (FPL)\***



\*Age standardized to the year 2000 U.S. population.

Data source: The Third National Health and Nutrition Examination Survey (NHANES III) 1988-1994, National Center for Health Statistics, Centers for Disease Control and Prevention.

**Figure 4.1.3. Percentage of adults aged 18 and older with full dentition by annual family income\***



\*Age standardized to the year 2000 U.S. population.

Data source: 1999 Behavioral Risk Factor Surveillance System (BRFSS), Centers for Disease Control and Prevention.

## 4.2 Adults with 21 or more teeth

The presence of 21 or more natural teeth has been used internationally as a marker for a functional dentition, or one which provides the ability “to eat, speak, and socialize without active disease, discomfort, or embarrassment” without the need for full or partial dentures (Adult Dental Health Survey, 1998).

Although tooth retention has greatly improved over the past few decades, a significant percentage of older Americans do not have functional dentitions (Burt & Eklund, 1999). Since the effects of tooth loss increase as more teeth are lost, this indicator gives a broader perspective than indicators measuring the presence or absence of all teeth.

While the absolute number of teeth is very important, people’s satisfaction with their mouth and their ability to function also depend on having anterior teeth and opposing (or occluding) pairs of natural teeth that facilitate chewing, and on the absence of disease (Elias & Sheiham, 1999). National data on occluding pairs of teeth will be collected starting in 2003.

### SOURCES OF DATA

Analyses reported here are based on the Third National Health and Nutrition Examination Survey (NHANES III) 1988-1994, National Center for Health Statistics, Centers for Disease Control and Prevention.

■ Among the U.S. population aged 20 years and older, 71.7% had 21 or more natural teeth, compared to 42.4% of those aged 50 years and older.

■ **Differences by age and race/ethnicity (Figure 4.2.1)**

- The percentage of people with 21 or more teeth was progressively lower in older age groups.
- At all age groups between ages 30 and 79, a lower percentage of non-Hispanic blacks had 21 or more teeth than either non-Hispanic whites or Mexican Americans.

■ **Demographic differences among those aged 50 and older**

- The percentage of people with 21 or more teeth was greatest for those with more than a 12th grade education, followed by high school graduates and those with less than a 12th grade education (Figure 4.2.2).

■ For both those living below and at or above the federal poverty level a higher percentage of Mexican Americans had 21 or more teeth (Figure 4.2.3).

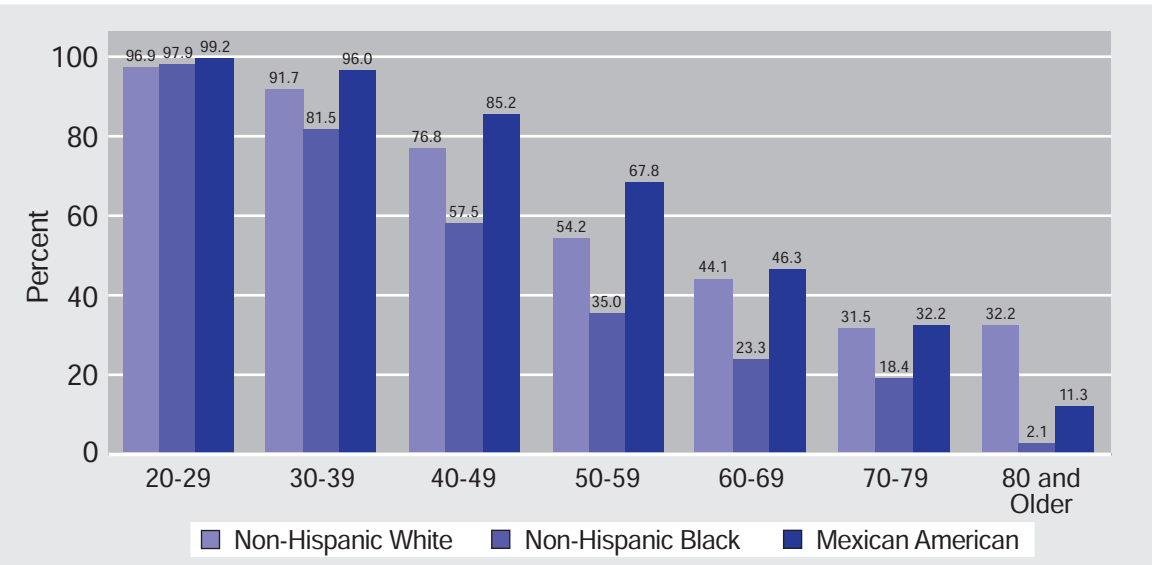
■ A higher percentage of people at or above the federal poverty level had 21 or more teeth than did people below the federal poverty level (Figure 4.2.3).

*Bullets reference data that can be found in Tables 4.2.1 and 4.2.2.*

### REFERENCES

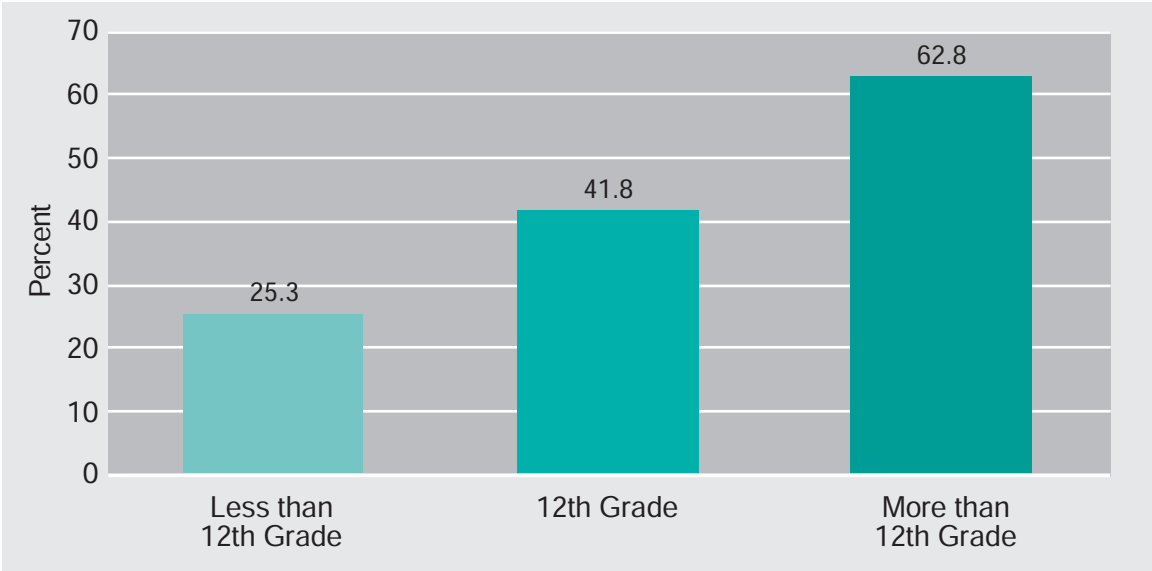
- Adult Dental Health Survey: Oral Health in the United Kingdom. Office for National Statistics. 1998
- Burt BA, Eklund SA. Dentistry, dental practice, and the community. Philadelphia: W.B. Saunders Co., 1999.
- Elias AC, Sheiham A. The relationship between satisfaction with mouth and number, and position of teeth. Journal of Oral Rehabilitation 1998;25:649-61.

**Figure 4.2.1. Percentage of adults aged 20 and older with 21 or more teeth by age and race/ethnicity**



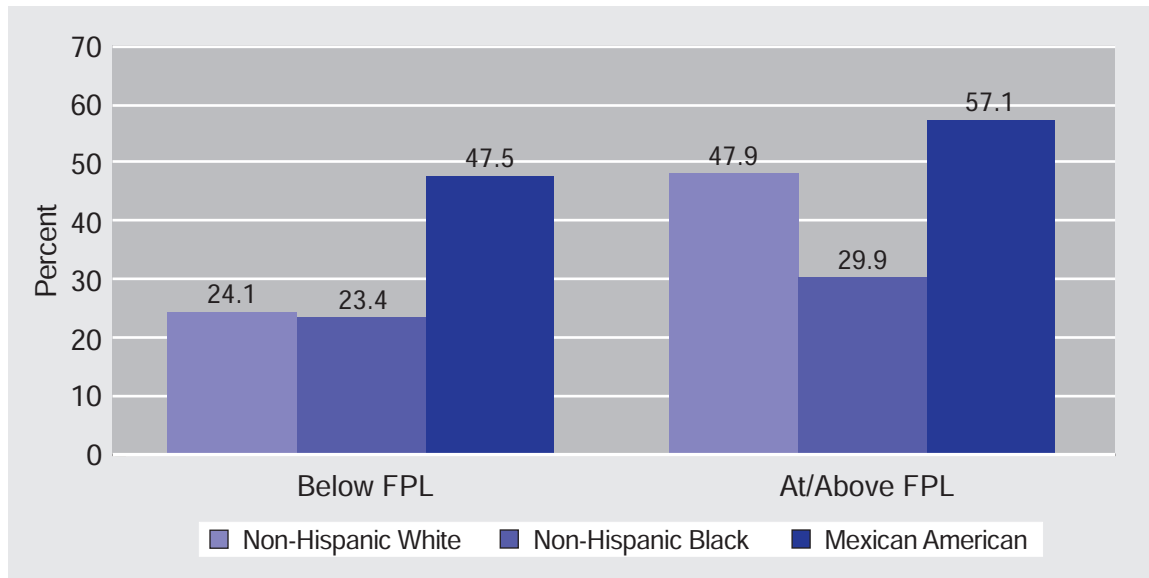
Data source: The Third National Health and Nutrition Examination Survey (NHANES III) 1988-1994, National Center for Health Statistics, Centers for Disease Control and Prevention.

**Figure 4.2.2. Percentage of adults aged 50 and older with 21 or more teeth by education\***



\*Age standardized to the year 2000 U.S. population.  
Data source: The Third National Health and Nutrition Examination Survey (NHANES III) 1988-1994, National Center for Health Statistics, Centers for Disease Control and Prevention.

**Figure 4.2.3. Percentage of adults aged 50 and older with 21 or more teeth by race/ethnicity and federal poverty level (FPL)\***



\*Age standardized to the year 2000 U.S. population.

Data source: The Third National Health and Nutrition Examination Survey (NHANES III) 1988-1994, National Center for Health Statistics, Centers for Disease Control and Prevention.



### 4.3 Edentulism

Edentulism, defined as total tooth loss, is more prevalent among persons with less than a high school education, those without dental insurance, non-Hispanic blacks, and current everyday smokers (CDC, 1999).

Between the 1950s and the early 1990s the prevalence of edentulism in the United States decreased from 50% to 42% among people aged 65 and older, from 28% to 11% for 45- to 64-year-olds, and from 5% to 2% for persons 18 to 44 years old (Oliver & Brown, 1993).

Using data from the 1999 Behavioral Risk Factor Surveillance System (BRFSS), Centers for Disease Control and Prevention, the percentage of the U.S. population who were edentulous varied by state. Hawaii had the lowest percentage (16%) while Kentucky had the highest (44%).

#### SOURCES OF DATA

Analyses reported here are based on data from the 1998 National Health Interview Survey, National Center for Health Statistics, and the 1999 Behavioral Risk Factor Surveillance System, Centers for Disease Control and Prevention.

#### Demographic differences for:

##### ■ All age ranges (25 to 74 years)

- The prevalence of edentulism was lower among those with more education (Figure 4.3.1).
- The prevalence of edentulism was lower among those with higher incomes or living at or above the federal poverty level (Figures 4.3.1 and 4.3.2).

##### ■ 25- to 44-year-olds

- Two percent of this age group was edentulous.
- A greater percentage of non-Hispanic whites than Hispanics were edentulous (Figure 4.3.1).

##### ■ 45- to 64-year-olds

- Ten percent of this age group was edentulous.
- Non-Hispanic whites had the highest prevalence of edentulism (Figure 4.3.1).

##### ■ 65- to 74-year-olds

- Twenty-five percent of this age group was edentulous.
- No significant differences in prevalence were found between racial/ethnic groups (Figure 4.3.1).

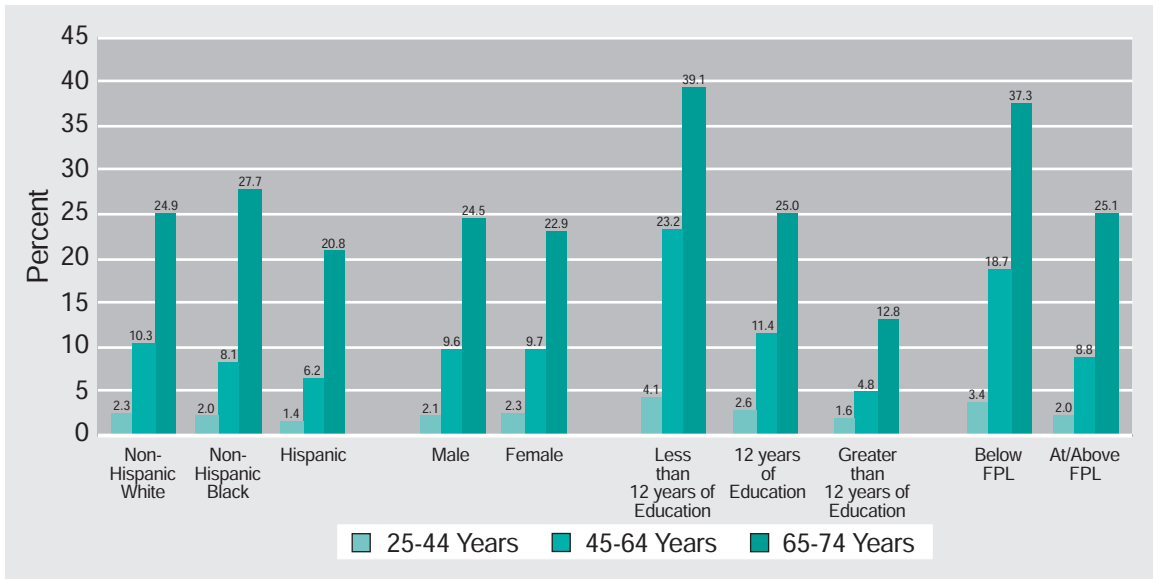
*Bullets reference data that can be found in Tables 4.3.1, 4.3.2, and 4.3.3.*

#### REFERENCES

Centers for Disease Control and Prevention. Total tooth loss among persons aged > or = 65 years—selected states, 1995-1997. *MMWR Morb Mortal Wkly Rep* 1999;48(10):206-10.

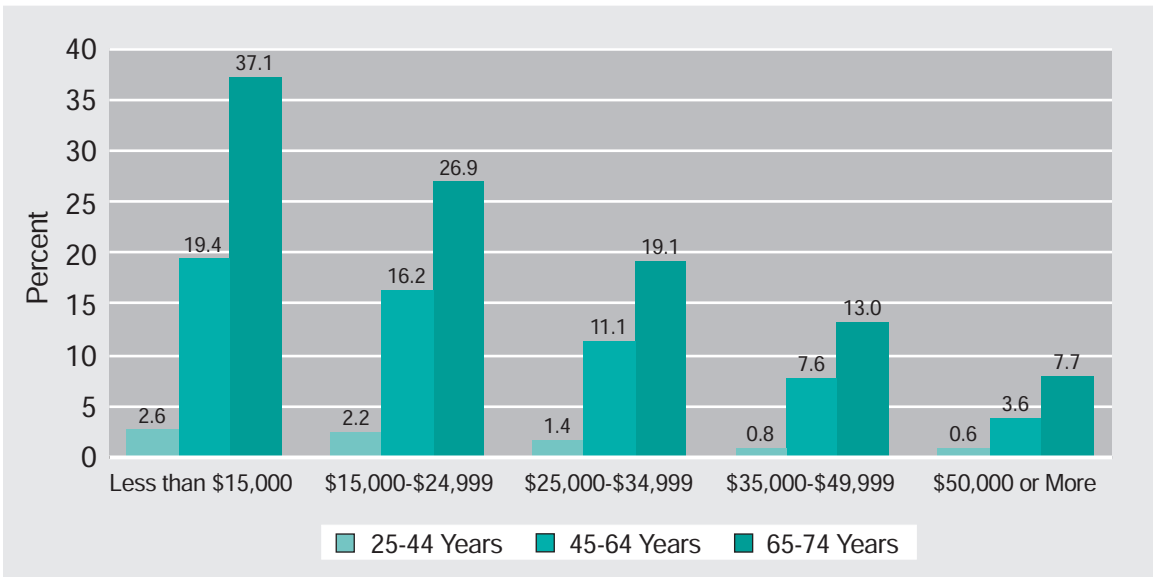
Oliver RC, Brown LJ. Periodontal diseases and tooth loss. *Periodontology* 2000 1993;2:117-27.

**Figure 4.3.1. Prevalence of edentulism by selected demographic characteristics**



Data source: 1998 National Health Interview Survey, National Center for Health Statistics, Centers for Disease Control and Prevention.

**Figure 4.3.2. Prevalence of edentulism by annual family income and age**



Data source: 1999 Behavioral Risk Factor Surveillance System, Centers for Disease Control and Prevention.

## 4.4 Edentulous people who have and use dentures

Despite a trend toward increased tooth retention, millions of Americans have lost some or all of their teeth. Among totally edentulous people 89.6% wear complete dentures in both arches, 96.8% of persons edentulous in the upper arch only wear an upper denture, and 80.6% of persons edentulous in the lower arch only wear a lower denture (Redford et al., 1996).

### SOURCES OF DATA

Analyses reported here are based on the Third National Health and Nutrition Examination Survey (NHANES III) 1988-1994, National Center for Health Statistics, Centers for Disease Control and Prevention.

#### ■ Differences by race/ethnicity (Figure 4.4.1)

- Among edentulous persons aged 65 years and older a greater percentage of non-Hispanic whites had and used their dentures than either non-Hispanic blacks or Mexican Americans.

#### ■ Differences by federal poverty level (Figure 4.4.1)

- Among edentulous persons aged 65 years and older, a greater percentage of persons living at or above the federal poverty level had and used their dentures.

#### ■ Differences by education (Figure 4.4.1)

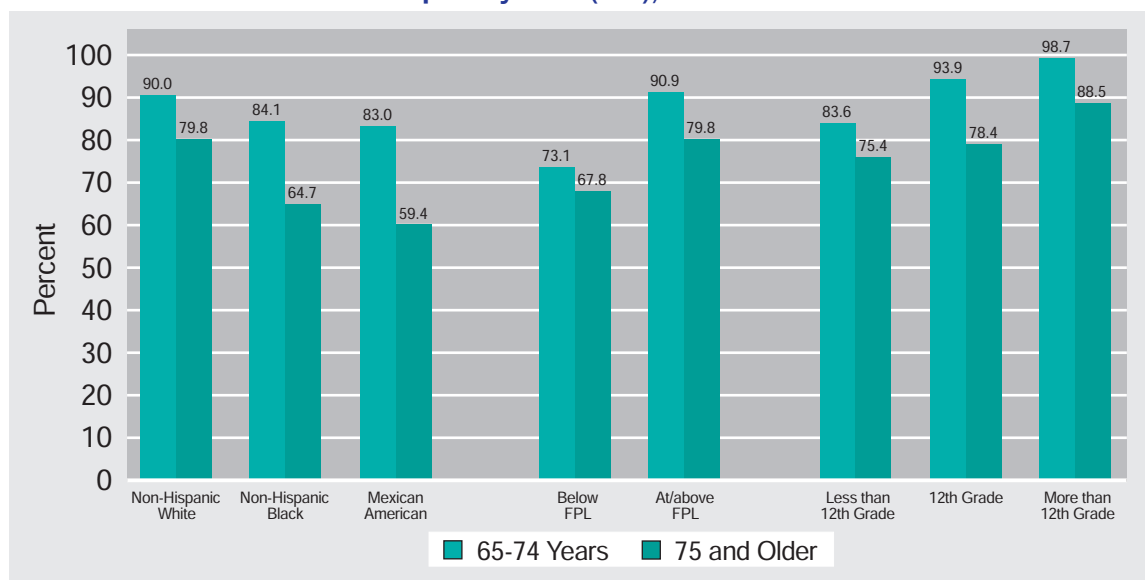
- A greater percentage of persons with more than a 12th grade education had and used their dentures compared to persons with less than a 12th grade education.

*Bullets reference data that can be found in Table 4.4.1.*

### REFERENCES

Redford M, Drury TF, Kingman A, Brown LJ. Denture use and the technical quality of dental prostheses among persons 18-74 years of age: United States, 1988-1991. J Dent Res 1996;75(Spec Iss):714-25.

**Figure 4.4.1. Prevalence of denture use among edentulous adults by race/ethnicity, federal poverty level (FPL), and education**



Data source: The Third National Health and Nutrition Examination Survey (NHANES III) 1988-1994, National Center for Health Statistics, Centers for Disease Control and Prevention.

